

FILE 'REGISTRY' ENTERED AT 10:10:08 ON 28 MAR 2003

=> S TREHALOSE SYNTHASE/CN  
L1 4 TREHALOSE SYNTHASE/CN

=> D 1-4

L1 ANSWER 1 OF 4 REGISTRY COPYRIGHT 2003 ACS  
RN 455928-09-3 REGISTRY  
CN Synthase, trehalose (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN \*\*\*Trehalose synthase\*\*\*  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: CA, CAPLUS, TOXCENTER

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
1 REFERENCES IN FILE CA (1962 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L1 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2003 ACS  
RN 444718-06-3 REGISTRY  
CN Glucosyltransferase, .alpha.-D-glucose-1-phosphate:D-glucose (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN .alpha.-D-Glucose-1-phosphate:D-glucose glucosyltransferase  
CN \*\*\*Trehalose synthase\*\*\*  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: CA, CAPLUS

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
3 REFERENCES IN FILE CA (1962 TO DATE)  
3 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L1 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2003 ACS  
RN 395644-91-4 REGISTRY  
CN Glucosyltransferase, maltose .alpha.-D- (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN E.C. 5.4.99.16  
CN Maltose .alpha.-D-glucosyltransferase  
CN Maltose glucosylmutase  
CN \*\*\*Trehalose synthase\*\*\*  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: BIOSIS, CA, CAPLUS, TOXCENTER

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
4 REFERENCES IN FILE CA (1962 TO DATE)  
4 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L1 ANSWER 4 OF 4 REGISTRY COPYRIGHT 2003 ACS  
RN 126341-88-6 REGISTRY  
CN Glucosyltransferase, uridine diphosphoglucose:glucose 1- (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN \*\*\*Trehalose synthase\*\*\*  
CN Trehalose synthetase  
CN UDP-glucose:glucose 1-glucosyltransferase  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, CA, CAPLUS, CIN, PROMT, TOXCENTER, USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
36 REFERENCES IN FILE CA (1962 TO DATE)  
36 REFERENCES IN FILE CAPLUS (1962 TO DATE)

FILE 'CAPLUS' ENTERED AT 10:11:12 ON 28 MAR 2003

=> S TREHALOSE SYNTHASE;S MALTOSE GLUCOSYLMUTASE;S L1;S L2,L3,L4

7909 TREHALOSE

74 TREHALOSES

7915 TREHALOSE

(TREHALOSE OR TREHALOSES)

70396 SYNTHASE

3785 SYNTHASES

71009 SYNTHASE

(SYNTHASE OR SYNTHASES)

L2 91 TREHALOSE SYNTHASE

(TREHALOSE (W) SYNTHASE)

23383 MALTOSE

38 MALTOSES

23389 MALTOSE

(MALTOSE OR MALTOSES)

3 GLUCOSYLMUTASE

L3 0 MALTOSE GLUCOSYLMUTASE

(MALTOSE (W) GLUCOSYLMUTASE)

L4 43 L1

L5 97 (L2 OR L3 OR L4)

=> S PSEUDOMONAS

62965 PSEUDOMONAS

1 PSEUDOMONASES

17 PSEUDOMONADES

L6 62969 PSEUDOMONAS

(PSEUDOMONAS OR PSEUDOMONASES OR PSEUDOMONADES)

=> S L5 AND L6

L7 9 L5 AND L6

=> D 1-9 CBIB ABS

L7 ANSWER 1 OF 9 CAPLUS COPYRIGHT 2003 ACS

2003:45753 Study on fermentation medium of \*\*\*trehalose\*\*\*

\*\*\*synthase\*\*\* producing strain. Xue, Lu; Ma, Ying (Department of Life Science and Engineering, Harbin Institute of Technology, Harbin, 150001, Peop. Rep. China). Shipin Yu Fajiao Gongye, 28(7), 34-36 (Chinese) 2002. CODEN: SPYYDO. ISSN: 0253-990X. Publisher: Shipin Yu Fajiao Gongye.

AB Trehalose is a natural functional disaccharide. It could be widely used in foodstuff, pharmaceutical, cosmetic and agriculture. \*\*\*Trehalose\*\*\*

\*\*\*synthase\*\*\* can convert maltose into trehalose by the intermol. transglucosylation. And it could be used in the scale prodn. of trehalose. This study mainly discussed the fermn. medium of

\*\*\*Pseudomonas\*\*\* putida H76, which can produce \*\*\*trehalose\*\*\*

\*\*\*synthase\*\*\*. The results showed that the best carbon source for

\*\*\*Pseudomonas\*\*\* putida H76 is maltose and glucose, the best source for the strain is peptone and yeast extn., the best inorg. source is MgSO4.7H2O. The formula of culture medium was optimized as: maltose 3%, glucose 3%, peptone 2%, yeast extn. 0.7%, MgSO4.7H2O 0.2%.

L7 ANSWER 2 OF 9 CAPLUS COPYRIGHT 2003 ACS

2002:164505 Document No. 137:168337 Study on \*\*\*trehalose\*\*\*

\*\*\*synthase\*\*\* synthesis in permeabilized cell. Xue, Lu; Ma, Ying (Department of Life Science and Engineering, Harbin Institute of Technology, Harbin, 150001, Peop. Rep. China). Shipin Yu Fajiao Gongye, 28(1), 16-18 (Chinese) 2002. CODEN: SPYYDO. ISSN: 0253-990X. Publisher: Shipin Yu Fajiao Gongye.

AB The permeabilization of \*\*\*Pseudomonas\*\*\* putida cells in relation to \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* activity was studied using different org. solvents and detergents. The performance of these solvents was dependent on the incubation temp., treatment time, and the concn. of

cells. Maximum enzyme activity was achieved with 2% toluene and 0.2% EDTA, at 35.degree., 0.5 h. The expression of intracellular \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* activity was increased 117.8-fold with respect to untreated cells.

L7 ANSWER 3 OF 9 CAPLUS COPYRIGHT 2003 ACS

2002:89878 Document No. 136:156403 Methods for identifying therapeutic targets for treating infectious disease. Shepard, Michael H.; Lackey, David B.; Cathers, Brian E.; Sergeeva, Maria V. (Newbiotics, Inc., USA). PCT Int. Appl. WO 2002007780 A2 20020131, 503 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US23095 20010720. PRIORITY: US 2000-PV219598 20000720; US 2000-PV244953 20001101; US 2001-PV276728 20010316.

AB This invention provides methods and systems to identify enzymes that act as enzyme-catalyzed therapeutic activators and the enzymes identified by these methods. Also provided by this invention are compds. activated by the enzymes as well as compns. contg. these compds.

L7 ANSWER 4 OF 9 CAPLUS COPYRIGHT 2003 ACS

2000:688352 Document No. 133:263221 Cloning and sequence of \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* from \*\*\*Pseudomonas\*\*\* stutzeri and a process for producing trehalose using recombinant \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\*. Lee, Se Young; Song, Eun Kyung; Park, Yearn Hung; Kwon, Sang Ho; Lee, Kwang Ho; Kim, Chang Gyeom; Lee, Jin Ho; Chung, Sung Oh; Jeon, Yeong Joong (Cheil Jedang Corporation, S. Korea). PCT Int. Appl. WO 2000056868 A1 20000928, 44 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-KR131 19990324.

AB The present invention relates to a trehalose-producing microorganism and a process for producing trehalose. It also relates to a novel \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* protein, a \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* gene, recombinant plasmids carrying said \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* gene, and transformed microorganisms with said recombinant plasmids. A novel microorganism \*\*\*Pseudomonas\*\*\* stutzeri CJ38 that produce trehalose from maltose is identified. Cloning and sequence of \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* gene of P. stutzeri and deduced amino acid sequence of the encoded enzyme are disclosed. A process for producing trehalose using the recombinant \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* from P. stutzeri expressed in E. coli is also disclosed.

L7 ANSWER 5 OF 9 CAPLUS COPYRIGHT 2003 ACS

1999:530323 Document No. 131:181654 Cloning of gene for \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* from \*\*\*Pseudomonas\*\*\*. Ota, Shunya; Yamakishi, Masaki; Oishi, Kazuo; Mochizuki, Kazuo; Higashidani, Atsushi; Yoshinaga, Koichi (Shizuoka Prefecture, Japan). Jpn. Kokai Tokkyo Koho JP 11225769 A2 19990824 Heisei, 22 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-54433 19980219.

AB The gene encoding a 687-amino-acid \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* is isolated from \*\*\*Pseudomonas\*\*\* strain Fl. Expression of the gene encoding \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* in Escherichia coli is also shown.

L7 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2003 ACS

1997:738066 Document No. 128:19974 Purification and properties of trehalose-synthesizing enzyme from \*\*\*Pseudomonas\*\*\* sp. Fl. Ohguchi, Masao; Kubota, Norio; Wada, Tadashi; Yoshinaga, Koichi; Uritani, Masahiro; Yagisawa, Masako; Ohishi, Kazuo; Yamagishi, Masaaki; Ohta, Toshiya; Ishikawa, Katsutoshi (Fuji Seito Co. Ltd., Shizuoka, 424, Japan). Journal of Fermentation and Bioengineering, 84(4), 358-360 (English) 1997. CODEN:

- AB \*\*\*Trehalose\*\*\* \*\*\*synthase\*\*\* (I), which catalyzes the conversion of maltose to trehalose by intramol. transglucosylation, was purified from \*\*\*Pseudomonas\*\*\* sp. Fl. Its mol. wt. was estd. to be 250 kDa by gel filtration and 67 kDa by SDS-PAGE, and its pI was 5.8. Native I may consist of 4 subunits. I was active on maltose and trehalose among saccharides tested as substrates. The sequence of the 1st 27 N-terminal amino acids of I was detd.; the N-terminal amino acid was Thr.

L7 ANSWER 7 OF 9 CAPLUS COPYRIGHT 2003 ACS

1997:284078 Document No. 127:14877 Preparation of \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* of \*\*\*Pseudomonas\*\*\*. Oguchi, Masahisa; Kubota, Satoo; Wada, Tadashi; Sano, Takafumi; Oishi, Kazuo; Yamagishi, Masaaki; Ota, Toshiya (Fuji Abrasive Works, Japan; Shizuoka Prefecture). Jpn. Kokai Tokkyo Koho JP 09098779 A2 19970415 Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-185043 19960715. PRIORITY: JP 1995-198597 19950803.

- AB A novel \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* was prepd. from culture of \*\*\*Pseudomonas\*\*\* strain F-1 FERM P-14747. The enzyme exhibits a pH optimum 6.0-10.0, temp. optimum 45.degree., pI 5.0-6.0, and mol. wt. 40,000-80,000 by SDS-PAGE.

L7 ANSWER 8 OF 9 CAPLUS COPYRIGHT 2003 ACS

1997:148458 Document No. 126:316389 Production of trehalose from starch by thermostable enzymes from *Sulfolobus acidocaldarius*. Mukai, Kazuhisa; Tabuchi, Akihiko; Nakada, Tetsuya; Shibuya, Takashi; Chaen, Hiroto; Fukuda, Shigeharu; Kurimoto, Masashi; Tsujisaka, Yoshio (Hayashibara Biochemical Laboratories Inc., Okayama, 700, Japan). Starch/Staerke, 49(1), 26-30 (English) 1997. CODEN: STARDD. ISSN: 0038-9056. Publisher: VCH.

- AB The optimum conditions for the prodn. of trehalose from starch were investigated using 2 thermostable enzymes, maltooligosyl \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\* (MTSase) and maltooligosyl trehalose trehalohydrolase (MTHase), from *Sulfolobus acidocaldarius* ATCC 33909. The optimum pH was 5.5 and the optimum temp. was 55-57.degree. using isoamylase from \*\*\*Pseudomonas\*\*\* amyloclavata as a debranching enzyme. The addn. of CGTase to the reaction mixt. during the saccharification process caused an increase in trehalose and a decrease in maltose and maltotriose. Isoamylase was better than pullulanase as a debranching enzyme. The yield of trehalose was independent of the type of starch used. Under optimum conditions, the yield of trehalose from corn starch at 30% concn. was >82%.

L7 ANSWER 9 OF 9 CAPLUS COPYRIGHT 2003 ACS

1995:978255 Document No. 124:25297 Existence of a novel enzyme converting maltose into trehalose. Nishimoto, Tomoyuki; Nakano, Masayuki; Ikegami, Shoji; Chaen, Hiroto; Fukuda, Shigeharu; Sugimoto, Toshiyuki; Kurimoto, Masashi; Tsujisaka, Yoshio (Hayashibara Biochemical Laboratories, Inc., Okayama, 700, Japan). Bioscience, Biotechnology, and Biochemistry, 59(11), 2189-90 (English) 1995. CODEN: BBBIEJ. ISSN: 0916-8451. Publisher: Japan Society for Bioscience, Biotechnology, and Agrochemistry.

- AB A bacterium, *Pimelobacter* sp. R48, isolated from soil, showed the ability to produce trehalose from maltose. The partially purified enzyme from a cell-free ext. catalyzed the conversion of maltose into trehalose without requiring phosphate. The enzyme was considered to be a new intramol. glucosyltransferase. This activity is propose to be a \*\*\*trehalose\*\*\* \*\*\*synthase\*\*\*. The enzyme was also tentatively found to exist in \*\*\*Pseudomonas\*\*\* putida H262 isolated from soil and in some *Thermus* strains.

=> E LEE S/AU

=> S E3,E64,368

7642 E3

261 E64

5874 368

L8 0 E3,E64,368

(E3(W)E64(W)368)

=> S E3,E64,E68

```
      895 "LEE S"/AU
      731 "LEE S Y"/AU
      1 "LEE S YONG"/AU
L9      1624 ("LEE S"/AU OR "LEE S Y"/AU OR "LEE S YONG"/AU)

=> S LEE SE/AU
L10      0 LEE SE/AU

=> E LEE SE
=> S E35
L11      89 "LEE SE YONG"/AU

=> E KYUNGKEE/AU

=> E JEON Y/AU
=> S E3,E5,E20
      30 "JEON Y"/AU
      1 "JEON Y H"/AU
      21 "JEON YEONG JOONG"/AU
L12      52 ("JEON Y"/AU OR "JEON Y H"/AU OR "JEON YEONG JOONG"/AU)

=> S L9,L11,L12
L13      1765 (L9 OR L11 OR L12)

=> S L13 AND L5
L14      1 L13 AND L5

=> S L14 NOT L7
L15      0 L14 NOT L7
```

|   | L # | Hits  | Search Text                | DBs                        |
|---|-----|-------|----------------------------|----------------------------|
| 1 | L2  | 0     | MALTOSE ADJ GLUCOSYLMUTASE | USPAT<br>;<br>US-PG<br>PUB |
| 2 | L3  | 0     | TREHALOSE ADJ SYNTHETASE   | USPAT<br>;<br>US-PG<br>PUB |
| 3 | L4  | 23236 | PSEUDOMONAS                | USPAT<br>;<br>US-PG<br>PUB |
| 4 | L5  | 9     | L1 AND L4                  | USPAT<br>;<br>US-PG<br>PUB |
| 5 | L8  | 1     | 5538883.PN.                | USPAT<br>;<br>US-PG<br>PUB |
| 6 | L1  | 26    | TREHALOSE ADJ SYNTHASE     | USPAT<br>;<br>US-PG<br>PUB |
| 7 | L11 | 0     | TREHALOSE ADJ SYNTHASE     | USOCR                      |
| 8 | L12 | 0     | MALTOSE ADJ GLUCOSYLMUTASE | USOCR                      |